



Washington Office of Superintendent of **PUBLIC INSTRUCTION**

Science Teacher Training

1. **Purpose:**

To provide grants to school districts and educational service districts (ESDs) and community-based organizations (CBOs) for science teaching training in the Washington State Science Learning Standards (WSSLS), Next Generation Science Standards, (NGSS), which includes climate science education standards (ClimeTime).

2. **Description of services provided:**

ESDs and CBOs collaborated to develop and deliver WSSLS/NGSS professional learning including climate science workshops and courses for science educators in Washington schools and districts, particularly those historically underserved by science education. Comprehensive schools and targeted comprehensive schools as identified by the Washington School Improvement Framework (WSIF) were given priority for service.

All professional learning materials and resources developed by the nine ESDs and six CBOs are shared as Open Educational Resources (OERs) on the [Washington Commons OER](#) website. In 2020, all 15 projects launched in the prior year received continuation funding.

3. **Criteria for receiving services and/or grants:**

Priority was given to populations of students, schools, districts, and communities historically underserved by science education including but not limited to Tribal Compact Schools, migrant students, schools with high free and reduced lunch populations, rural and remote schools, students in alternative learning environments, students of color, English learner students, and students receiving special education services. Comprehensive schools and targeted comprehensive schools as identified by the WSIF were also given priority.

The targeted elementary grade level for 2020-21 was fourth grade, although all elementary teachers were invited to participate in any training. In secondary education, the focus was on middle and high school teachers responsible for teaching earth and space science standards and their related performance expectations in life science, physical science, and engineering. Other high school educators, both general education educators in other content areas and career and

technical education educators whose teaching assignments include forestry, agriculture, environmental science, etc., were also included.

With COVID 19 school closures and restrictions, project managers extended the invitation to professional learning events to all interested science/STEM educators and their colleagues.

Beneficiaries in 2020-21 School Year:

Number of School Districts: >200 many school districts participated more than once which makes the exact count difficult.

Number of Schools: 2,021

Number of Students: 203,810 (approximately)

Number of Educators: 6,640 (numbers impacted by COVID closures)

Other: TOSAs, Administrators 836 approximately

Number of OSPI staff associated with this funding (FTEs): 1.4 FTE

Number of contractors/other staff associated with this funding: 13 Contracts

FY21 Funding: State Appropriation: \$3,000,000

Federal Appropriation: \$0

Other fund sources: \$0

TOTAL (FY21) \$3,000,000

4. **Are federal or other funds contingent on state funding?**

- No
- Yes, please explain.

5. **State funding history:**

| Fiscal Year | Amount Funded | Actual Expenditures |
|--------------------|----------------------|----------------------------|
| FY21 | \$3,000,000 | \$2,922,403 |
| FY20 | \$3,000,000 | \$2,957,305 |
| FY19 | \$4,000,000 | \$3,843,391 |

6. **Number of beneficiaries (e.g., school districts, schools, students, educators, other) history:**

| Fiscal Year | Number of School Districts | Number of Schools | Number of Students | Number of Educators* | Number of Other |
|-------------|----------------------------|-------------------|--------------------|----------------------|----------------------------|
| FY21 | >200 | 2,021 | 284,488 | 6,640* | 836 |
| FY20 | >200** | 1,742 | 244,894 | 6,058 | 745 |
| FY19 | 200 | 0 | 0 | 7,500 | Included in educator total |

*Attendance impacted by Covid restrictions

**Many districts participated more than once making the exact count difficult.

7. **Programmatic changes since inception (if any):**

During the 2020 legislative session, the proviso was amended to include Tribal Education Agencies as part of the community-based organizations section of the proviso language.

8. **Evaluations of program/major findings:**

- The [ClimeTime](#) website continued to expand its footprint, highlight active professional learning opportunities, showcase open education resources developed in the projects, provide short teacher video vignettes, and share [news articles and media releases](#).
- The impact extended beyond the nine ESDs and six CBOs. As in previous years, state agencies and statewide community-based organizations collaborated with the fifteen funded projects to conduct science and climate science related workshops and learning experiences held virtually.
- Statewide, elementary and secondary teachers continued to receive and participate in standards aligned science trainings, the majority of which was conducted virtually. The trainings represented a diverse range of topics, including:
 - ways to use [local resources for field studies and outdoor learning](#).
 - interpreting [climate science research](#) to design data visualizations and deepen climate science understandings,
 - learning to use the [Washington Tracking Health Network data](#) to [track health issues](#) and a changing climate
 - adapting existing lessons [into storylines](#) to focus on phenomena-based learning which [integrates content and strategies](#) more inclusive of all students and the communities in which they live.
 - developing [STEAM in the Field Studies](#) for students and teachers in partnership with local and regional agency scientists,
 - introducing climate justice and socioscientific issues into the classroom by forming cohorts of the [Climate Justice League](#), and
 - learning about hyperlocal issues such as [snow-water equivalents](#).
- [New virtual canvas courses aligned](#) to the WSSLS/NGSS climate science standards

were developed and implemented for K12 educators across the state. The courses included titles such as Climate Science 3.0: Modeling and Student Explanations and Crafting 3D Formative Assessment items for K-12 Teachers. Over 460 teachers attended. New courses are designed and ready for school year 2021-2022.

- Several projects translated [learning materials into Spanish](#) for use with English Language Learners and within the Migrant Education community and held *community cafes* to introduce them.
- Four ESDs concluded a three-year pilot of a middle school open education learning curriculum in a project titled: *OpenSciEd*. New learning materials including a full unit on climate change are ready for teacher use. Proviso funding was leveraged to fund Washington middle school teachers' professional learning and classroom materials.
- Computer gaming and climate learning were combined into professional learning for Spokane area teachers and learning activities for students.
- Incarcerated youth in Thurston and Chehalis counties participated in over 24 learning experiences in climate science and environmental science topics.
- Several CBOs and ESDs continued K12 professional learning projects in collaboration with tribal nations to focus on Indigenous ways of knowing and understanding the natural and physical world, specifically focusing on climate science using the *Since Time Immemorial* curriculum. In one project, Elders presented stories and experiences as part of the professional development design.
- This year, teachers continued to enjoy "[STEM Seminars](#)," a CBO partnership with the regional ESDs, local agencies. STEM Seminars provide K12 teachers with contemporary learning about climate science and climate impacts in several key Washington sectors such as air quality, agriculture, natural resource management, and health. One focus this year was on food waste.
- Partnerships and productive collaborations formed among formal educators and community-based organizations along with state and local agencies.
- Data collected and reported in the [AESD Climate Science Survey Report](#) found that approximately 90% of teachers expressed that the professional learning events broadened and deepened their knowledge of the topics around climate science and their ability to use their new skills and knowledge with their students.

9. **Major challenges faced by the program:**

- The COVID-19 pandemic continued to impact professional learning this year. Projects held professional learning online but had to move to afterschool hours or Saturdays. Teachers expressed their exhaustion at spending a day on Zoom with students and then workshops online after work hours. Teachers were grateful for the opportunity and for the flexibility that was provided in the session formats but noted their fatigue.

- Despite the cost of substitutes being covered through the grant, many teachers were still unable to participate in any professional development offered during the school day.
- Projects that offered learning sessions after school and on weekends provided teacher stipends but this was not as effective as embedded professional learning during the teacher workday.
- Virtual learning impacted educators' ability to implement hands on learnings with their students and valuable data about student learning was not collected.
- Many teachers continued to have difficulty accessing reliable technology.
- Providing professional learning designed to include special education educators needs continued focused support.
- Infusing climate science learning across multiple disciplines in addition to science is both a need and a challenge.
- Sustainable educational change requires time and commitment. Contextualized and localized professional development for climate science and science is successful but occurs over time.
- Infusing climate science career opportunities into CTE is an area of continued work. Adjusting science/CTE equivalency frameworks will continue and needs to include current career-related research, CTE educators, and industry partners.

10. **Future opportunities:**

- The project has expanded throughout the three years of funding and informally launching its own network of educators interested in climate science and the impacts of climate change on communities. Growing a sustainable network is a continued priority.
- Collaborations with the Office of Native Education are strengthening with the goal of providing models of native student engagement fostering both student knowledge and leadership skills within their respective communities.
- The professional learning opportunity for Career and Technical Education teachers needs further development and design for their respective content areas.
- Continued support for the translation of learning materials into multiple languages and expanding community engagement for parents and families will support student learning and classroom instruction.
- Diversifying the invitation to participate in science and climate science events is a continued challenge requiring patience and community input especially as related to environmental racism, impacts to health, etc.
- Last year, remote and virtual learning taught project managers that professional learning has no boundaries and that teachers and presenters from other places in the state are interested in attending and sharing their knowledge and skills. This continues to be the new normal. Expanding our technological footprint will continue to be a high priority including virtual learning communities and cohorts.

- The development of the Climate Justice League project changed teacher ideas about incorporating social justice issues into their science instruction especially increasing student interest, engagement, and mastery of their content learning. The need for sustained, contextualized teacher training is urgent and compelling.

11. **Statutory and/or budget language:**

ESSB 5092, Sec. 1518 (4)(c) - \$3,000,000 of the general fund—state appropriation for fiscal year 2020 and \$3,000,000 of the general fund—state appropriation for fiscal year 2021 is provided solely for the Office of the Superintendent of Public Instruction to provide grants to school districts and educational service districts for science teacher training in the next generation science standards including training in the climate science standards. At a minimum, school districts shall ensure that teachers in one grade level in each elementary, middle, and high school participate in this science training. Of the amount appropriated \$1,000,000 is provided solely for community based nonprofits including tribal education organizations to partner with public schools for next generation science standards.

12. **Other relevant information:**

- As a result of the proviso funding and the program development it facilitated, teachers deepened their understanding of the Washington State Science Learning Standards including its climate science standards.
- The ClimeTime initiative is receiving national recognition for its innovation, structure (partnerships), and its reach (almost 22,000 educators in three years).
- [Washington State Open Educational Resources](#) website is the umbrella for all project resources developed during the year.
- In a survey of students, the following response to the query “What is one question about climate change do you have that is important to you” the most frequent response was, “Are there solutions?”

13. **Schools/districts receiving assistance:**

See [OSPI's Grantee List](#)

14. **Program Contact Information:**

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